transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator in said optical receiver except when said optical receiver corresponds to at least one end of said second segment,

said optical receiver comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

Cont'd a6

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

I. STATUS OF THE CLAIMS

Claims 9, 12-14, and 17 are canceled.

Various of the claims are amended herein.

New claims 25-58 are added.

In view of the above, it is respectfully submitted that claims 1-8, 10, 11, 15, 16, and 18-58 are currently pending and under consideration.

II. REJECTION OF CLAIMS 1-24 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

The claims are amended herein to overcome the rejection by reciting subject matter indicated by the Examiner to be allowable.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 1, 4, 9, AND 13 UNDER 35 U.S.C. § 102(B) AS BEING ANTICIPATED BY DELAVAUX ET AL.

The claims are amended herein to overcome the rejection by reciting subject matter indicated by the Examiner to be allowable.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. REJECTION OF CLAIMS 1, 3, 9, AND 11 UNDER 35 U.S.C. § 102(B) AS BEING ANTICIPATED BY ISHIKAWA ET AL.

The claims are amended herein to overcome the rejection by reciting subject matter indicated by the Examiner to be allowable.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. REJECTION OF CLAIMS 5-8 AND 17-19 UNDER 35 U.S.C. § 102(B) AS BEING ANTICIPATED BY MATSUDA ET AL.

The claims are amended herein to overcome the rejection by reciting subject matter indicated by the Examiner to be allowable.

In view of the above, it is respectfully submitted that the rejection is overcome.

VI. REJECTION OF CLAIMS 2, 4, AND 10 UNDER 35 U.S.C. § 103(A) AS BEING UNPATENTABLE OVER ISHIKAWA ET AL.

The claims are amended herein to overcome the rejection by reciting subject matter indicated by the Examiner to be allowable.

In view of the above, it is respectfully submitted that the rejection is overcome.

VII. ALLOWABLE SUBJECT MATTER

On page 7 of the Office Action, it is indicated that claims 15, 16, and 20-24 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph.

Generally, claims 15 and 21 have been rewritten in independent form. Thus, claims 15 and 21, and the claims dependent therefrom, should now be allowable.

Claims 16, 20, and 22-24 have been rewritten in independent form.

Claims 1 and 5 correspond generally to claims 15 and 21, respectively.

New claims 25-58 are added to further describe specific embodiments of the present invention. Claims 25-58 correspond generally to, and set forth similar allowable features as claims 1-8, 10, 11, 15, 16, and 18-24. More specifically, for example, new independent claims 25, 47, 48, 53, and 54 correspond generally to claim 1. New independent claims 29, 49, 52, 55, and 55 correspond generally to claim 5. New independent claims 33 and 48 correspond

generally to claim 15. New independent claims 36, 39, 42, 43, and 46 correspond generally to claims 21, 20, 22, 23, and 24, respectively.

In view of the above, it is respectfully submitted that claims 1-8, 10, 11, 15, 16, and 18-58 are in proper condition for allowance.

VIII. CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: August 1, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please CANCEL claims 9, 12-14, and 17 without prejudice or disclaimer.

Please AMEND the following claims:

1. (ONCE AMENDED) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator [in association with each of said optical transmitter, said optical receiver, and said optical amplifier;

said dispersion compensator] providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

2. (AS UNAMENDED) A method according to claim 1, wherein each of said segments is formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

3. (AS UNAMENDED) A method according to claim 1, wherein said optical signal has a wavelength of about 1.55 μm.

4. (AS UNAMENDED) A method according to claim 1, wherein said optical signal comprises a plurality of optical signals having different wavelengths obtained by wavelength division multiplexing.

5. (ONCE AMENDED) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line [including] composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent [ones] segments of said plurality of segments; and

(e) providing a dispersion compensator in [association with each of] said optical [transmitter, said optical receiver, and said optical] amplifier except [that corresponding] when said optical amplifier corresponds to at least one end of said second segment,

said optical amplifier comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

6. (AS UNAMENDED) A method according to claim 5, wherein said single-mode fiber has a zero-dispersion wavelength of about 1.3 μm, and said dispersion shifted fiber has a zero-dispersion wavelength of about 1.55 μm.

7. (AS UNAMENDED) A method according to claim 5, wherein said optical signal has a wavelength of about 1.55 μm.

8. (AS UNAMENDED) A method according to claim 5, wherein said optical signal comprises a plurality of optical signals having different wavelengths obtained by wavelength division multiplexing.

9. (CANCELED)

10. (ONCE AMENDED) A system according to claim [9] <u>15</u>, wherein each of said segments is formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

11. (ONCE AMENDED) A system according to claim [9] <u>15</u>, wherein said optical signal has a wavelength of about 1.55 μm.

12. (CANCELED)

13. (CANCELED)

14. (CANCELED)

15. (ONCE AMENDED) A system <u>for optical transmission adopting dispersion compensation, comprising:</u>

<u>an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;</u>

<u>an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;</u>

<u>an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;</u>

<u>an optical amplifier provided between any two adjacent ones of said segments; and</u>

<u>a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range,</u>

[according to claim 9,] wherein[:]

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

16. (ONCE AMENDED) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent ones of said segments; and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range,

[according to claim 9,] wherein[:]

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of [0]O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of [0]O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

17. (CANCELED)

18. (ONCE AMENDED) A system according to claim [17] 21, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a

zero-dispersion wavelength of about 1.55 μm.

19. (ONCE AMENDED) A system according to claim [17] <u>21</u>, wherein said optical signal has a wavelength of about 1.55 μm.

20. (ONCE AMENDED) A system <u>for optical transmission adopting dispersion compensation, comprising:</u>

<u>an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;</u>

<u>an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;</u>

<u>an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;</u>

<u>an optical amplifier provided between any two adjacent segments of said plurality of segments; and</u>

<u>a dispersion compensator provided in said optical transmitter, except when said optical transmitter corresponds to at least one end of said second segment,</u>

[according to claim 17,] wherein[:]

said optical transmitter comprises an E/O converter for converting an electrical signal into said optical signal, and a postamplifier for amplifying said optical signal; <u>and</u>

said dispersion compensator being provided between said E/O converter and said postamplifier.

21. (ONCE AMENDED) A system <u>for optical transmission adopting dispersion compensation, comprising:</u>

<u>an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;</u>

<u>an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;</u>

<u>an optical receiver for receiving said optical signal from the other end of said optical fiber</u>

transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical amplifier, except when said optical amplifier corresponds to at least one end of said second segment,

[according to claim 17,] wherein[:]

said optical amplifier comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

22. (ONCE AMENDED) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver, except when said optical receiver corresponds to at least one end of said second segment,

[according to claim 17,] wherein[:]

said optical receiver comprises a preamplifier for amplifying said optical signal, and an O/E converter for converting said optical signal into an electrical signal; and

said dispersion compensator being provided between said preamplifier and said O/E converter.

23. (ONCE AMENDED) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical transmitter, except when said optical transmitter corresponds to at least one end of said second segment,

[according to claim 17,] wherein[:]

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

24. (ONCE AMENDED) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver, except when said optical

receiver corresponds to at least one end of said second segment,

[according to claim 17,] wherein[:]

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

Please Add the following NEW claims:

25. (NEW) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical transmitter.

26. (NEW) A method according to claim 25, wherein each of said plurality of segments are formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

27. (NEW) A method according to claim 25, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

28. (NEW) A method according to claim 25, wherein an optical signal supplied by the optical transmitter comprises a plurality of optical signals having different wavelengths obtained

by wavelength division multiplexing.

29. (NEW) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator in said optical amplifier except when said optical amplifier corresponds to at least one end of said second segment,

said optical amplifier comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

30. (NEW) A method according to claim 29, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

31. (NEW) A method according to claim 29, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

32. (NEW) A method according to claim 29, wherein an optical signal supplied by the optical transmitter comprises a plurality of optical signals having different wavelengths obtained by wavelength division multiplexing.

33. (NEW) A system comprising:

an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments;

and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical transmitter.

34. (NEW) A system according to claim 33, wherein each of said plurality of segments are formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

35. (NEW) A system according to claim 33, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

36. (NEW) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical amplifier except when said optical amplifier corresponds to at least one end of said second segment,

said optical amplifier comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

37. (NEW) A system according to claim 36, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

38. (NEW) A system according to claim 36, wherein an optical signal supplied by the

optical transmitter has a wavelength of about 1.55 μm.

39. (NEW) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprises an E/O converter for converting an electrical signal into an optical signal supplied by the optical transmitter, and a postamplifier for amplifying said optical signal; and

said dispersion compensator being provided between said E/O converter and said postamplifier.

40. (NEW) A system according to claim 39, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

41. (NEW) A system according to claim 39, wherein an optical signal has a wavelength of about 1.55 μm.

42. (NEW) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver except when said optical

receiver corresponds to at least one end of said second segment,

said optical receiver comprises a preamplifier for amplifying an optical signal supplied by the optical transmitter, and an O/E converter for converting said optical signal into an electrical signal; and

said dispersion compensator being provided between said preamplifier and said O/E converter.

43. (NEW) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into an optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

44. (NEW) A system according to claim 43, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

45. (NEW) A system according to claim 43, wherein an optical signal has a wavelength of about 1.55 μm.

46. (NEW) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver except when said optical receiver corresponds to at least one end of said second segment,

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting an optical signal supplied by the optical transmitter into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

47. (NEW) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

48. (NEW) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical amplifier comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

49. (NEW) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent segments of said plurality of segments; and

(e) providing a dispersion compensator in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

50. (NEW) A method according to claim 49, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

51. (NEW) A method according to claim 49, wherein an optical signal has a wavelength of about 1.55 μm.

52. (NEW) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent segments of said plurality of segments; and

(e) providing a dispersion compensator in said optical receiver except when said optical receiver corresponds to at least one end of said second segment,

said optical receiver comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

53. (NEW) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each

having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical amplifier.

54. (NEW) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical receiver.

55. (NEW) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said

rear-stage amplifier.

56. (NEW) A method according to claim 55, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

57. (NEW) A method according to claim 55, wherein an optical signal has a wavelength of about 1.55 μm.

58. (NEW) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator in said optical receiver except when said optical receiver corresponds to at least one end of said second segment,

said optical receiver comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.